

REMARKS

The present Office Action states that claims 1-99 are now pending in the application. Claims 1-33 and 75-96 are allowed. Claims 39, 40, 49-51, 54, 60, 61, 63, 66 and 98 are allowable if rewritten into dependent form. Claims 34-38, 41-48, 52, 53, 55-59, 62, 64, 65, 67-72, 74 and 97 are rejected. Minor amendments have been made to the claims to overcome the Examiner's objections. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the remarks contained herein.

The following remarks are believed to be fully responsive to the Outstanding Office Action. Upon consideration of these remarks, Applicant submits that all of the pending Claims will be allowable.

REJECTION UNDER 35 U.S.C. § 102

Claims 34-37, 41-45, 46-48, 52-53, 55-56, 57-59, 62, 64-65 and 67-69 stand rejected under 35 U.S.C. §102 as being anticipated by Lu et al. U.S. 5,897,795. Applicant respectfully requests reconsideration of these rejections in light of the following remarks.

Lu discloses a plasma arc torch that uses a **translatable** nozzle (18, 218, 418, 518) to establish a pilot arc **between the electrode and the nozzle**. A spring element (26, 226, 326, 426, 526) is provided around the nozzle. When the plasma gas flows into the plasma chamber (40, 140, 240, 340, 440), the pressurized gas reacts against the biasing effect of the spring element and pushes the nozzle from a de-energized mode (Figs. 1A, 4A, 6A, 8A, 9A) into an energized mode (Figs. 1B, 4B, 6B, 8B, 9B), in which the nozzle is pushed away from the electrode to establish a pilot arc between the electrode and the nozzle. Whether the spring element is mounted on the exterior surface of the nozzle (Figs. 1A and 1B), below a swirl ring 158 (Figs. 9A and 9B), or captured in a preload ring 136 of a retaining cap 132 (Figs. 4A and 4B), and whether the spring element is a helical compression spring (Figs. 6A and 6B) or a spring of a "Z" cross-section (Figs. 8A and 8B), the concept of starting a pilot arc in Lu is the

same, i.e. using pressurized gas to bias against a spring element which is physically connected to the translatable nozzle so that the nozzle is pushed away from the electrode as the spring is biased to establish a pilot arc between the electrode and the nozzle.

Among the above-identified claims, Claims 34, 46, and 57 are independent claims, each defining a start cartridge comprising a biasing member and an initiator wherein the initiator is movable against the biasing member to establish a pilot arc **between the initiator and a tip (or a nozzle)**. The tip referred to in the specification and the claims of this application finds correspondence in a “nozzle” in Lu. Lu cannot anticipate Claims 34, 46, and 57 because Lu does not teach a separate initiator element, in addition to a tip and an electrode, and that the pilot arc can be established somewhere other than between the electrode and the nozzle. The rest of the above-identified claims each directly or indirectly depend from Claims 34, 46 or 57 and distinguish over Lu for at least the reasons stated above in connection with Claims 34, 46 or 57. Accordingly, Applicant respectfully request that the rejection of Claims 34-37, 41-45, 46-48, 52-53, 55-56, 57-59, 62, 64-65 and 67-69 be withdrawn.

Claims 70-72 and 74 stand rejected under 35 U.S.C. §102 as being anticipated by Lu. Lu cannot anticipate Claim 70 because Lu does not teach an initiator that is movable against a resilient bias to establish a pilot arc between the initiator and a tip (or nozzle), as defined in Claim 70. Claims 71-72 and 74 each depends from Claim 70 and distinguishes over Lu for at least the reasons stated above in connection with Claim 70. Accordingly, Applicant respectfully request that the rejection of Claims 70-72 and 74 be withdrawn.

Claim 97 stands rejected under 35 U.S.C. §102 as being anticipated by Lu. Claim 97 defines “a method of venting gas from a plasma arc torch comprising a fixed electrode and a fixed tip.” If a claim preamble, when read in the context of the entire claim is necessary to give life, meaning and vitality to the claim, the claim preamble should be construed as if in the balance of the claim. The preamble of Claim 97, which recites “a method of venting gas from a plasma arc torch comprising **a fixed electrode and a fixed tip**,” is necessary to give life,

meaning and vitality to the claim because the preamble recites a novel and distinctive feature against the conventional notion that either the electrode or the tip (or nozzle) must be movable in order to establish a pilot arc. Given this preamble limitation, Lu cannot anticipate Claim 97 because Lu does not teach how to establish a pilot arc when the electrode and the nozzle are fixed. Accordingly, Applicant respectfully request that the rejection of Claim 97 be withdrawn.

REJECTION UNDER 35 U.S.C. § 103

Claim 99 stands rejected under 35 U.S.C. §103 as being unpatenable over Lu in view of Enyedy U.S.5,796,067. Enyedy also discloses a plasma arc torch using the relative movement between the electrode and the nozzle to start a pilot arc. Lu cannot make Claim 99 obvious in view of Enyedy because neither Lu nor Enyedy teaches or suggests the use of an initiator to start a pilot arc between the initiator and the tip (or the nozzle) in the presence of an electrode, as defined in Claim 99. Accordingly, Applicant respectfully request that the rejection of Claim 99 be withdrawn.

INCONSISTENCIES REGARDING THE ALLOWABILITY OF CLAIMS 60, 73, AND 75

The Outstanding Office Action does not clearly state whether Claims 60, 73, and 75 are allowed, allowable or rejected. The Office Action Summary states that Claims 60 and 73 are objected to and Claim 75 is allowed, while the Detailed Action states that all Claims 60, 73 and 75 are rejected. Nonetheless, Applicant submits neither Lu nor Enyedy anticipates or renders obvious Claims 60, 73, and 75. Claims 60 and 73 each depends from Claim 57 and distinguishes over either Lu or Enyedy for at least the reasons stated above in connection with Claim 57. Claim 75 defines an initiator for starting the pilot arc, which is neither taught nor suggested in Lu or Enyedy. Accordingly, Applicant respectfully submits that the Claims 60, 73 and 75 are allowable.

CONCLUSION

It is believed that all of the stated grounds of objection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding objections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (314) 726-7524.

Respectfully submitted,

Dated: 13 OCT 04

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